

WHAT IS CLAIMED IS:

1. A stent delivery system comprising:

a first cylindrical member capable of being
inserted into a forceps channel of an endoscope and
including a through hole having a central axis;

5 a second cylindrical member inserted into the
through hole of the first cylindrical member and
capable of advancing/retreating with respect to the
first cylindrical member, the second cylindrical member
including a holding mechanism which holds a relative
10 position of the second cylindrical member with respect
to the forceps channel of the endoscope; and

a stent which is attached between the first and
second cylindrical members in a state where a diameter
15 of the stent is reduced by the first cylindrical member
and which expands when the first cylindrical member is
removed.

2. A stent delivery system according to claim 1,
wherein the second cylindrical member includes at least
20 one X-ray chip recognized at the time of irradiation
with an X-ray and disposed in a position where the
stent is charged.

3. A stent delivery system according to claim 2,
wherein the X-ray chip is disposed in a projected state
25 outside a diametric direction with respect to an axis
of the second cylindrical member in a state in which
the stent is disposed in the second cylindrical member.

4. A stent delivery system according to claim 3,
wherein the holding mechanism includes:

a third cylindrical member directly slidable on
the first cylindrical member outside the first
5 cylindrical member and fixed to the forceps channel of
the endoscope by a friction; and

a connection member which connects the third
cylindrical member to the second cylindrical member.

5. A stent delivery system according to claim 3,
10 wherein the holding mechanism includes:

a third cylindrical member directly slidable on
the first cylindrical member outside the first
cylindrical member and fixed to a forceps cap disposed
on a base end of the forceps channel of the endoscope
15 by a friction; and

a connection member which connects the third
cylindrical member to the second cylindrical member.

6. A stent delivery system according to claim 3,
wherein the holding mechanism includes:

20 a holder disposed on the endoscope; and
a fixing tool which connects the holder to the
second cylindrical member in a detachably fixed state.

7. A stent delivery system according to claim 6,
wherein the fixing tool includes:

25 an arm which grasps the holder; and
an arm which grasps the second cylindrical member.

8. A stent delivery system according to claim 2,

wherein static and dynamic frictions between the stent and the outer peripheral surface of the second cylindrical member are larger than the dynamic friction between the stent and the inner peripheral surface of the first cylindrical member.

9. A stent delivery system according to claim 8, wherein the holding mechanism includes:

a third cylindrical member directly slidable on the first cylindrical member outside the first cylindrical member and fixed to the forceps channel of the endoscope by a friction; and

a connection member which connects the third cylindrical member to the second cylindrical member.

10. A stent delivery system according to claim 8, wherein the holding mechanism includes:

a third cylindrical member directly slidable on the first cylindrical member outside the first cylindrical member and fixed to a forceps cap disposed on a base end of the forceps channel of the endoscope by a friction; and

a connection member which connects the third cylindrical member to the second cylindrical member.

11. A stent delivery system according to claim 8, wherein the holding mechanism includes:

a holder disposed on the endoscope; and

a fixing tool which connects the holder to the second cylindrical member in a detachably fixed state.

12. A stent delivery system according to claim 11,
wherein the fixing tool includes:

an arm which grasps the holder; and

an arm which grasps the second cylindrical member.

5 13. A stent delivery system according to claim 2,
wherein the holding mechanism includes:

a third cylindrical member directly slidable on
the first cylindrical member outside the first
cylindrical member and fixed to the forceps channel of
10 the endoscope by a friction; and

a connection member which connects the third
cylindrical member to the second cylindrical member.

14. A stent delivery system according to claim 2,
wherein the holding mechanism includes:

15 a third cylindrical member directly slidable on
the first cylindrical member outside the first
cylindrical member and fixed to a forceps cap disposed
on a base end of the forceps channel of the endoscope
by a friction; and

20 a connection member which connects the third
cylindrical member to the second cylindrical member.

15. A stent delivery system according to claim 2,
wherein the holding mechanism includes:

a holder disposed on the endoscope; and

25 a fixing tool which connects the holder to the
second cylindrical member in a detachably fixed state.

16. A stent delivery system according to claim 15,

wherein the fixing tool includes:

an arm which grasps the holder; and

an arm which grasps the second cylindrical member.

17. A stent delivery system according to claim 1,
5 wherein the holding mechanism includes:

a third cylindrical member directly slidable on
the first cylindrical member outside the first
cylindrical member and fixed to the forceps channel of
the endoscope by a friction; and

10 a connection member which connects the third
cylindrical member to the second cylindrical member.

18. A stent delivery system according to claim 1,
wherein the holding mechanism includes:

15 a third cylindrical member directly slidable on
the first cylindrical member outside the first
cylindrical member and fixed to a forceps cap disposed
on a base end of the forceps channel of the endoscope
by a friction; and

20 a connection member which connects the third
cylindrical member to the second cylindrical member.

19. A stent delivery system according to claim 1,
wherein the holding mechanism includes:

a holder disposed on the endoscope; and

25 a fixing tool which connects the holder to the
second cylindrical member in a detachably fixed state.

20. A stent delivery system according to claim 19,
wherein the fixing tool includes:

an arm which grasps the holder; and

an arm which grasps the second cylindrical member.

21. A stent delivery system according to claim 1,
wherein at least the outer peripheral surface of the
5 tip end of the first cylindrical member is coated with
a hydrophilic lubrication.

22. A stent delivery system according to claim 1,
wherein the second cylindrical member includes a tip-
end chip coated with a hydrophilic lubrication on the
10 tip end.

23. A stent delivery system comprising:
a first cylindrical member capable of being
inserted into a forceps channel of an endoscope and
including a through hole having a central axis;
15 a second cylindrical member inserted into the
through hole of the first cylindrical member and
capable of advancing/retreating with respect to the
first cylindrical member, the second cylindrical member
including a holding mechanism which holds a relative
20 position of the second cylindrical member with respect
to the forceps channel of the endoscope; and
a stent which is attached between the first and
second cylindrical members in a state where a diameter
of the stent is reduced by the first cylindrical member
25 and which expands when the first cylindrical member is
removed.

24. A stent delivery system according to claim 23,

wherein the inner cylinder includes at least one X-ray chip recognized at the time of irradiation with an X-ray and disposed in a position where the stent is charged.

5 25. A stent delivery system according to claim 24, wherein the X-ray chip is disposed in a projected state outside a diametric direction with respect to an axis of the inner cylinder in a state in which the stent is disposed in the inner cylinder.

10 26. A stent delivery system according to claim 25, wherein the holding mechanism includes:

 a cylindrical member directly slidable on the outer cylinder outside the outer cylinder and fixed to the forceps channel of the endoscope by a friction; and

15 a connection member which connects the cylindrical member to the inner cylinder.

 27. A stent delivery system according to claim 25, wherein the holding mechanism includes:

20 a cylindrical member directly slidable on the outer cylinder outside the outer cylinder and fixed to a forceps cap disposed on a base end of the forceps channel of the endoscope by a friction; and

 a connection member which connects the cylindrical member to the inner cylinder.

25 28. A stent delivery system according to claim 25, wherein the holding mechanism includes:

 a holder disposed on the endoscope; and

a fixing tool which connects the holder to the inner cylinder in a detachably fixed state.

29. A stent delivery system according to claim 28, wherein the fixing tool includes:

- 5 an arm which grasps the holder; and
- an arm which grasps the inner cylinder.

30. A stent delivery system according to claim 24, wherein static and dynamic frictions between the stent and the outer peripheral surface of the inner cylinder
10 are larger than the dynamic friction between the stent and the inner peripheral surface of the outer cylinder.

31. A stent delivery system according to claim 30, wherein the holding mechanism includes:

- 15 a cylindrical member directly slidable on the outer cylinder outside the outer cylinder and fixed to the forceps channel of the endoscope by a friction; and
- a connection member which connects the cylindrical member to the inner cylinder.

32. A stent delivery system according to claim 30, wherein the holding mechanism includes:

- 20 a cylindrical member directly slidable on the outer cylinder outside the outer cylinder and fixed to a forceps cap disposed on a base end of the forceps channel of the endoscope by a friction; and
- 25 a connection member which connects the cylindrical member to the inner cylinder.

33. A stent delivery system according to claim 30,

wherein the holding mechanism includes:

a holder disposed on the endoscope; and

a fixing tool which connects the holder to the inner cylinder in a detachably fixed state.

5 34. A stent delivery system according to claim 33, wherein the fixing tool includes:

an arm which grasps the holder; and

an arm which grasps the inner cylinder.

10 35. A stent delivery system according to claim 24, wherein the holding mechanism includes:

a cylindrical member directly slidable on the outer cylinder outside the outer cylinder and fixed to the forceps channel of the endoscope by a friction; and

15 a connection member which connects the cylindrical member to the inner cylinder.

36. A stent delivery system according to claim 24, wherein the holding mechanism includes:

20 a cylindrical member directly slidable on the outer cylinder outside the outer cylinder and fixed to a forceps cap disposed on a base end of the forceps channel of the endoscope by a friction; and

a connection member which connects the cylindrical member to the inner cylinder.

25 37. A stent delivery system according to claim 24, wherein the holding mechanism includes:

a holder disposed on the endoscope; and

a fixing tool which connects the holder to the

inner cylinder in a detachably fixed state.

38. A stent delivery system according to claim 37,
wherein the fixing tool includes:

an arm which grasps the holder; and

5 an arm which grasps the inner cylinder.

39. A stent delivery system according to claim 23,
wherein the holding mechanism includes:

a cylindrical member directly slidable on the
outer cylinder outside the outer cylinder and fixed to
10 the forceps channel of the endoscope by a friction; and

a connection member which connects the cylindrical
member to the inner cylinder.

40. A stent delivery system according to claim 23,
wherein the holding mechanism includes:

15 a cylindrical member directly slidable on the
outer cylinder outside the outer cylinder and fixed to
a forceps cap disposed on a base end of the forceps
channel of the endoscope by a friction; and

a connection member which connects the cylindrical
20 member to the inner cylinder.

41. A stent delivery system according to claim 23,
wherein the holding mechanism includes:

a holder disposed on the endoscope; and

a fixing tool which connects the holder to the
25 inner cylinder in a detachably fixed state.

42. A stent delivery system according to claim 41,
wherein the fixing tool includes:

an arm which grasps the holder; and

an arm which grasps the inner cylinder.

43. A stent delivery system according to claim 23,
wherein at least the outer peripheral surface of the
5 tip end of the outer cylinder is coated with a
hydrophilic lubrication.

44. A stent delivery system according to claim 23,
wherein the inner cylinder includes a tip-end chip
coated with a hydrophilic lubrication on the tip end.

10 45. An indwelling method for a stent using a stent
delivery system, comprising:

introducing a first cylindrical member and a
second cylindrical member inserted inside the first
cylindrical member to a target portion through a
15 forceps channel of an endoscope while regulating
expansion of a self-expansion type stent charged in the
second cylindrical member by the first cylindrical
member;

using a holding mechanism to hold the second
20 cylindrical member with respect to the forceps channel;

pulling the first cylindrical member out of the
second cylindrical member, and expanding the stent to
indwell the stent in the target portion; and

pulling the first and second cylindrical members
25 out of the forceps channel while releasing a state of
the first cylindrical member held by the friction.

46. An indwelling method for a stent using a stent

delivery system, comprising:

introducing a first cylindrical member and a
second cylindrical member inserted inside the first
cylindrical member to a target portion through a
5 forceps channel of an endoscope while regulating
expansion of a self-expansion type stent charged in the
second cylindrical member by the first cylindrical
member;

fixing a third cylindrical member operating
10 together with the second cylindrical member to at least
one of an inner wall of a forceps channel and a forceps
cap by a friction;

pulling the first cylindrical member out of the
second cylindrical member, and expanding the stent to
15 indwell the stent in the target portion; and

pulling the first and second cylindrical members
out of the forceps channel while releasing the fixing
of the first cylindrical member by the friction.

47. An indwelling method for a stent using a stent
20 delivery system, comprising:

introducing a first cylindrical member and a
second cylindrical member inserted inside the first
cylindrical member to a target portion through a
forceps channel of an endoscope while regulating
25 expansion of a self-expansion type stent charged in the
second cylindrical member by the first cylindrical
member;

holding a portion between a holder disposed on the
endoscope and the second cylindrical member to regulate
the movement of the second cylindrical member;

5 pulling the first cylindrical member out of the
second cylindrical member, and expanding the stent to
indwell the stent in the target portion; and

releasing the regulation of the second cylindrical
member to pull the second cylindrical member together
with the first cylindrical member from the forceps
10 channel.